CLAIMS

1. A kit for visualising a cutting regime of a rough diamond comprising:

(a) a solid, translucent substance into which three dimensional images are marked, said markings indicating:

(i) the outer surface of the original rough diamond,

(ii) optionally, the internal defects of the rough diamond, said markings indicating the position and shape of said defects with respect of the rough diamond,

(iii) optionally, the outer surface of one or more cut diamonds, said markings indicating the position and shape of said cut diamonds with respect of the rough diamond, and

(b) solid, physical representations of one or more diamonds indicated by the markings of item (iii), and/or

solid, physical representation of the rough diamond, corresponding to the markings of item (i), and/or

one or more actual cut diamonds indicated by the markings of item (iii).

2. A kit for visualising a cutting regime of a rough diamond comprising:

(a) a hologram depicting markings which indicate:

(i) the outer surface of the original rough diamond,

(ii) optionally, internal defects of the rough diamond, said markings indicating the position and shape of said defects with respect of the rough diamond,

(iii) optionally, the outer surface of one or more cut diamonds, said markings indicating the position and shape of said cut diamonds with respect of the rough diamond,

(b) solid, physical representations of one or more diamonds, said diamonds corresponding to the markings of item (iii), and/or

solid, physical representation of the rough cut diamond, corresponding to the markings of item (i), and/or

one or more actual cut diamonds indicated by the markings of item (iii)

3. A device for visualising a cutting regime of a rough diamond comprising a solid, translucent substance into which three dimensional images are marked, said markings indicating:

(i) the outer surface of the original rough diamond,

(ii) optionally, internal defects of the rough diamond, said markings indicating the position and shape of said defects with respect of the rough diamond, and

(iii) optionally, the outer surface of one or more cut diamonds, said markings indicating the position and shape of said cut diamonds with respect of the rough diamond.

4. A kit according to claim 1, or a device according to claim 3 wherein the shape of said solid, translucent substance is a cube, sphere or box.

5. A kit according to claim 1, or a device according to claim 3 wherein the shape of said solid, translucent substance is the same as that of the outer surface of the rough diamond, with or without the features of any of items (i), (ii), and/or (iii).

6. A kit according to any of claims 1, 2, 4 and 5 or a device according to any of claims 3 to 5 further comprising a computer readable storage medium on which data regarding one or more of the following is stored: certification of the diamond, history of the stone, history of the mine, history of manufacturing, history of trading.

7. A kit according to any of claim 1 and 4 to 6, or a device according to any of claims 3 to 6, wherein said solid, translucent substance is glass or crystal.

8. A kit according to any of claim 1, 2, 4 to 7, wherein solid, physical representations of item (b) are made of glass or crystal.

9. A kit according to any of claims 1 to 4, 6 to 8, or a device according to any of claims 5 to 7 wherein solid, physical representations of item (b) further comprise markings which indicate the three dimensional boundaries of defects and/or where the outer contour of the rough diamond touches that of the cut diamond.

10. A kit according to claims 1, 6, 7, 9 wherein a solid translucent substance of (a) is absent.

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11. A method for determining a cutting regime of a rough diamond, comprising the steps of:

(a) obtaining a three dimensional numerical representation of the rough diamond,

(b) obtaining a three dimensional numerical representation of the defects therein,

(c) changing the positions, sizes and orientations of models of one or more diamonds, so that the maximum value of the collection of diamonds so optimized is obtained, said value based on the clarity, cut, colour and carat.

12. A method for determining a cutting regime of a rough diamond, comprising the steps of:

(a) obtaining a three dimensional numerical representation of the rough diamond,

(b) obtaining a three dimensional numerical representation of the defects therein,

(c) placing a model of a cut diamond therein,

(d) scaling up the model until said model touches an outer surface, or defect

(e) translating and/or rotating the model,

(f) repeating steps (d) to (f) until no further scaling-up is possible,

(g) storing the size and position of the model,

(h) repositioning the model of step (c), and repeating steps (d) to (h), until no larger model is found,

(i) obtaining the size and co-ordinates of the largest model by comparing the sizes stored in step (g), and

(j) repeating steps (c) to (i) in order to determine the size and position of subsequent models, wherein the scaling of step (d) is also terminated upon touching any of the previous model(s) determined in step (i).

13. A method for determining a cutting regime of a rough diamond, comprising the steps of:

(a) obtaining a three dimensional numerical representation of the rough diamond,

(b) obtaining a three dimensional numerical representation of the defects therein,

(c) generating a population of configurations,

(d) calculating the maximum scale factor for each configuration in the population,

(e) creating a new population based on the results of the first population,

(f) repeating steps (d) to (f) until the value of the cut stones converges to a maximum, and

(g) obtaining   the size and co-ordinates of the cut diamonds which provide the maximum value of cut diamonds.

14. A computer.program stored on a computer readable medium capable of performing a method according to any of claims 11 to 13.